WHAT IS CLAIMED IS:

1.    A print control program executed by an information processing apparatus that transmits print
5    data to an image-forming device and records an image, the program comprising:

code for causing said information processing apparatus to execute a spooling step of further re-spooling, as a second spool file, print data spooled by
10    an operating system as a first spool file; and

code for causing said information processing apparatus to execute a transmission step of reading out and transmitting to the image-forming device a portion of the print data re-spooled as the second spool file
15    during re-spooling in said spooling step.

2.    The print control program according to claim 1, wherein the program further comprises:

code for causing said information processing
20    apparatus to execute an attaching step of attaching to the print data re-spooled in said spooling step a first job identifier and a second job identifier different from the first job identifier; and

code for causing said information processing
25    apparatus to execute a managing step of managing jobs based on the second job identifier.

3.    The print control program according to claim 2, wherein the first job identifier is an identifier issued via the operating system.

5    4.    The print control program according to claim 1, wherein said transmission step comprises a segmented transmission step in which print data in the second spool file is divided and transmitted to said image-forming device in segments.

10

5.    The print control program according to claim 4, wherein:

said transmission step comprises a write finish detection step of detecting an end of spooling of the

15    second spool file in said spooling step; and

in said segmented transmission step the print data in the second spool file is transmitted to said image-forming device in segments if the second spool file write finish is not detected in said write finish

20    detection step.

6.    The print control program according to claim 4, wherein said segmented transmission step comprises:

25    a data amount detection step of detecting an amount of data not yet transmitted to said image-forming device in the second spool file;

41

a data determination step of determining whether or not the amount of data detected in said data amount detection step is below a predetermined threshold; and

a data transmission step of transmitting to said image-forming device the print data in the second spool file in segments if it is determined in said data determination step that the amount of data is below the threshold.

7. The print control program according to claim 6, wherein said segmented transmission step repeatedly executes said data transmission step at intervals shorter than that in which an interface time out is generated at said image-forming device, until the amount of data is determined in said determination step to be above the threshold.

8. The print control program according to claim 1, further comprising a retransmission step of retransmitting to said image-forming device said print data re-spooled as the second spool file in said spooling step before the re-spooling in said spooling step is finished if transmission to said image-forming device of the print data is stalled.

9. The print control program according to claim 8, wherein said retransmission step comprises:

a display step of displaying a status of said

print data re-spooled as the second spool file in said

spooling step; and

if print data for which transmission to said

5    image-forming device is interrupted due to error is

displayed in said display step, an accepting step of

accepting an instruction to retransmit such print data.


10.    The print control program according to

10   claim 9, wherein said retransmission step further

comprises an identification step of identifying print

data for retransmission using the second job identifier.


11.    A computer-readable recording medium

15   containing a print control program executed by an

information processing apparatus that transmits print

data to an image-forming device and records an image,

the program comprising:

code for causing said information processing

20   apparatus to execute a spooling step of further re-

spooling, as a second spool file, print data spooled by

an operating system as a first spool file and then once

de-spooled; and

code for causing said information processing

25   apparatus to execute a transmission step of reading out

and transmitting to said image-forming device a portion

of said print data re-spooled as the second spool file

during re-spooling in said spooling step.

12.    An information processing apparatus for
transmitting print data to an image-forming device and

5   recording an image, the apparatus comprising:

a spooling unit for further re-spooling, as a
second spool file, print data spooled by an operating
system as a first spool file and then once de-spooled;
and

10  a transmission unit for reading out and
transmitting to said image-forming device a portion of
said print data re-spooled as the second spool file
during re-spooling by said spooling unit.

15  13.    The information processing apparatus
according to claim 12, further comprising:

an attaching unit for attaching to the print data
re-spooled by said spooling unit a first job identifier
and a second job identifier different from the first

20  job identifier; and

a managing unit for managing jobs based on the
second job identifier.

14.    The information processing apparatus

25  according to claim 13, wherein the first job identifier
is an identifier issued via the operating system.

44

15. The information processing apparatus according to claim 12, wherein said transmission unit comprises a segmented transmission unit for dividing and transmitting print data in the second spool file to

5    said image-forming device in segments.

16. The information processing apparatus according to claim 15, wherein:

said transmission unit comprises a write finish

10   detection unit for detecting an end of spooling of a spool file by said spooling unit; and

said segmented transmission unit transmits the print data in the second spool file to said image-forming device in segments if a spool file write finish

15   is not detected by said write finish detection unit.

17. The information processing apparatus according to claim 15, wherein said segmented transmission unit comprises:

20   a data amount detection unit for detecting an amount of data not yet transmitted to said image-forming device in the second spool file;

a data determination unit for determining whether or not the amount of data detected by said data amount

25   detection unit is below a predetermined threshold; and

a data transmitter for transmitting to said image-forming device the print data in the second spool

file in segments if it is determined by said data
determination unit that the amount of data is below the
threshold.

5      18.    The information processing apparatus
according to claim 17, wherein said segmented
transmission unit repeatedly executes data transmission
by the data transmitter at intervals shorter than that
in which an interface time out is generated at said
10     image-forming device, until the amount of data is
determined by said determination unit to be above the
threshold.

       19.    The information processing apparatus
15     according to claim 12, further comprising a
retransmission unit for retransmitting to said image-
forming device said print data re-spooled as the second
spool file by said spooling unit before the re-spooling
by said spooling unit is finished if transmission to
20     said image-forming device of the print data is stalled.

       20.    The information processing apparatus
according to claim 19, wherein said retransmission unit
comprises:
25     a display unit for displaying a status of said
print data re-spooled as the second spool file by said
spooling unit; and

if print data for which transmission to said
image-forming device is interrupted due to error is
displayed by said display unit, an accepting unit for
accepting an instruction to retransmit such print data.

5

21.    The information processing apparatus
according to claim 20, wherein said retransmission unit
further comprises an identifier for identifying print
data for retransmission using the second job identifier.

10

22.    A print control program executed by an
information processing apparatus that transmits print
data to an image-forming device and records an image
comprises:

15    code for causing the information processing
apparatus to execute a spooling step of further re-
spooling print data spooled by an operating system; and
code for causing the information processing
apparatus to execute a transmission step of reading out
20    and transmitting to the image-forming device a portion
of the print data re-spooled, when an amount of data,
which is re-spooled and not yet transmitted to said
image-forming device, is below a predetermined
threshold, during re-spooling in said spooling step.

25